

## Warm Up

You have 40 feet of rope, what is the biggest rectangle you can make?

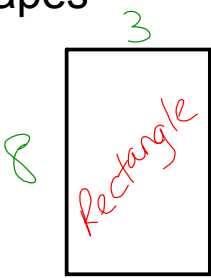
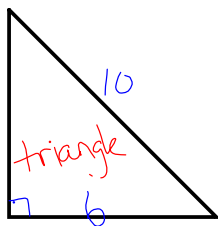
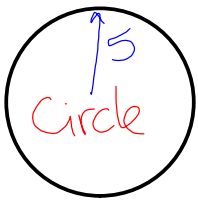
You have 40 squares of carpet. What is the biggest area you can cover?

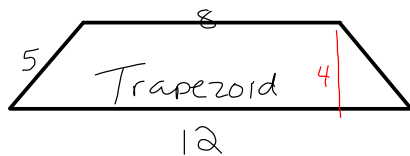
How would you define area and perimeter?

Perimeter - <sup>measuring</sup> the outside

Area - the space we cover inside

Find the perimeter and area of the following shapes

		
<p><b>P</b> <math>P = l + l + w + w</math>  <math>= 8 + 8 + 3 + 3</math>  <math>= 22 \text{ units}</math></p> <p><b>A</b> <math>A = lw</math>  <math>= (8)(3)</math>  <math>= 24 \text{ units}^2</math></p> <p><math>P = 2(l + w)</math>  <math>P = 2(8 + 3)</math></p>	<p><math>P = l_1 + l_2 + l_3</math>  <math>P = 6 + 8 + 10</math>  <math>= 24 \text{ units}</math></p> <p><math>A = \frac{bh}{2}</math>  <math>= \frac{6(8)}{2}</math>  <math>= 24 \text{ units}^2</math></p>	<p><math>C = 2\pi r</math>  <math>= 2 \times \pi \times 5</math>  <math>= 31.4 \text{ units}</math></p> <p><math>A = \pi r^2</math>  <math>= \pi 5^2</math>  <math>= 78.5 \text{ units}^2</math></p>



$$P = l_1 + l_2 + l_3 + l_4$$

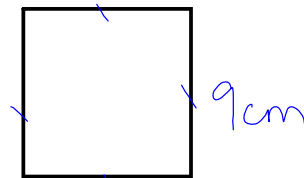
$$= 5 + 8 + 12 + 5$$

$$= 30 \text{ units}$$

$$A = \frac{(a+b)h}{2}$$

$$= \frac{(8+12)(4)}{2}$$

$$= 40 \text{ units}^2$$



$$P = 4s$$

$$= 4(9)$$

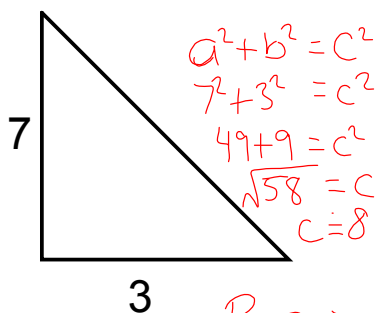
$$= 36$$

$$A = s^2$$

$$= 9^2$$

$$= 81$$

Some harder examples



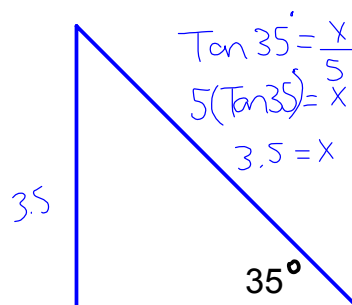
$$P = 8 + 7 + 3$$

$$= 18 \text{ unit}$$

$$A = \frac{3 \times 7}{2}$$

$$= \frac{21}{2}$$

$$= 10.5 \text{ units}^2$$



$$P = 3.5 + 5 + 6.1$$

$$P = 14.6$$

$$A = \frac{5 \times 3.5}{2}$$

$$= 8.75$$

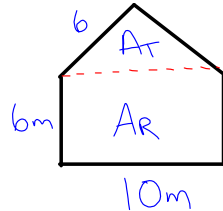
$$5^2 + 3.5^2 = x^2$$

$$\sqrt{37.75} = \sqrt{x^2}$$

$$6.1 = x$$

## Composite Shapes

A composite shape is made up of 2 or more basic shapes



What 2 basic shapes do I have here?

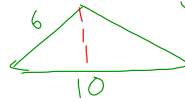
triangle & rectangle

Always break up a composite shape into it's basic components and then find area of each one. Perimeter is a little bit trickier!

Area of Rectangle:

$$\begin{aligned} A_R &= lw \\ &= 6(10) \\ &= 60\text{m}^2 \end{aligned}$$

Area of Triangle:



$$\begin{aligned} &\Rightarrow \text{Right Triangle with } b=5, h=? \\ h^2 &= 6^2 - 5^2 \\ &= 36 - 25 \\ &= 11 \\ h &= \sqrt{11} \\ h &\approx 3.3 \end{aligned}$$

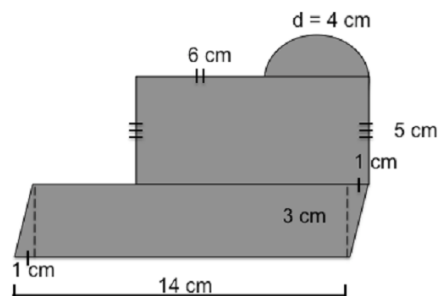
$$\begin{aligned} A_T &= \frac{bh}{2} \\ &= \frac{(10)(3.3)}{2} \\ &= \frac{33}{2} \\ &= 16.5 \text{ units}^2 \end{aligned}$$

Area of House:

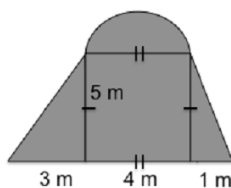
$$\begin{aligned} &60 + 16.5 \\ &= 76.5\text{m}^2 \end{aligned}$$

Perimeter:  $10 + 6 + 6 + 6 + 6$   
 $= 34\text{m}$

5. Composite Figures (Round to the nearest hundredths)



Find the perimeter around the shaded figure and the total shaded area.  
 Remember Pythagoras's theorem.  
 Include formulas and show your work. Units!



a)

b)